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6-1 GENERAL

6-1.01 Source of Supply and Quality of Materials. - The Contractor shall furnish all materials required to complete the work, except materials that are designated in the specifications to be furnished by the City and materials furnished by the City in accordance with Section 9-1.03, "Force Account Payment."

Only materials conforming to the requirements of the specifications shall be incorporated in the work.

The materials furnished and used shall be new, except as may be provided elsewhere in these specifications, on the plans or in the special provisions. The materials shall be manufactured, handled, and used in a workmanlike manner to insure completed work in accordance with the plans and specifications.

Materials to be used in the work will be subject to inspection and tests by the Engineer or the Engineer's designated representative. The Contractor shall furnish without charge such samples as may be required. The Contractor shall furnish the Engineer a list of sources of materials and the locations at which such materials will be available for inspection. The list shall be submitted on a City furnished form and shall be furnished to the Engineer in sufficient time to permit inspecting and testing of materials to be furnished from such listed sources in advance of their use. After testing, if it is found that the proposed sources of supply do not furnish a uniform product, or if the product from any such sources proves unacceptable at any time, the Contractor shall furnish approved material from other sources subject to prior approval of City. No material which, even after approval, has in any way become unfit for use shall be used in the work. The Engineer may inspect, sample or test materials at the source of supply or other locations, but such inspection, sampling or testing will not be undertaken until the Engineer is assured by the Contractor of the cooperation and assistance of both the Contractor and the supplier of the material. The Contractor shall assure that the Engineer or the Engineer's authorized representative has free access at all times to the material to be inspected, sampled or tested. It is understood that such inspections and tests in no way shall be considered as a guaranty of acceptance of such material nor of continued acceptance of material presumed to be similar to that upon which inspections and tests have been made, and that inspection and testing performed by the City shall not relieve the Contractor or the Contractor's suppliers of responsibility for quality control.

Manufacturers' warranties, guaranties, instruction sheets and parts lists, which are furnished with certain articles or materials incorporated in the work, shall be delivered to the Engineer before acceptance of the contract.

Reports and records of inspections made and tests performed, when available at the site of the work, may be examined by the Contractor.

6-1.02 City Furnished Materials. - Materials which are listed as City furnished materials in the special provisions will be available to the Contractor free of charge, unless otherwise specified.

The Contractor shall submit a written request to the Engineer for the delivery of City furnished material at least 15 days in advance of the date of its intended use, except that the written request for the delivery of City furnished sign

panels for roadside signs and overhead sign structures shall be submitted at least 30 days in advance of their intended installation. The request shall state the quantity and the type of each material.

The locations at which City furnished materials will be available to the Contractor free of charge will be designated in the special provisions. In such cases said materials shall be hauled to the site of the work by the Contractor at the Contractor's expense, including any necessary loading and unloading that may be involved. If the locations are not designated in the special provisions, the City furnished materials will be furnished to the Contractor free of charge at the site of the project. In either case, all costs of handling and placing City furnished material shall be considered as included in the price paid for the contract item involving such City furnished material.

The Contractor shall be responsible for all materials furnished to the Contractor and shall pay all demurrage and storage charges. City furnished materials lost or damaged from any cause whatsoever shall be replaced by the Contractor at the Contractor's expense. The Contractor shall be liable to the City for the cost of replacing City furnished material and such costs may be deducted from any monies due or to become due the Contractor.

All City furnished material that is not used on the work shall remain the property of the City and shall be delivered to the Engineer.

The Engineer may increase the number of sign panels in any shipment to provide economical use of the City's transportation facilities.

The quantity of each type of City furnished paint required shall be determined by the Contractor subject to verification by the Engineer.

6-1.03 Storage of Materials. - Articles or materials to be incorporated in the work shall be stored in such a manner as to insure the preservation of their quality and fitness for the work, and to facilitate inspection.

6-1.04 Defective Materials. - All materials which the Engineer has determined do not conform to the requirements of the plans and specifications will be rejected whether in place or not. They shall be removed immediately from the site of the work, unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used in the work, unless approval in writing has been given by the Engineer. Upon failure of the Contractor to comply promptly with any order of the Engineer made under the provisions in this Section 6-1.04, the Engineer shall have authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any moneys due or to become due the Contractor.

6-1.05 Trade Names and Alternatives. - For convenience in designation on the plans or in the specifications, certain articles or materials, to be incorporated in the work may be designated under a trade name or the name of a manufacturer and catalog information and followed by the words "or equal." The use of an alternative article or material which is of equal quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:

The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and the Contractor shall furnish all information necessary as required by the Engineer. The Engineer shall be the sole judge as to the quality

and suitability of alternative articles or materials and the Engineer's decision shall be final.

Whenever the specifications permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the equality of the material or article proposed. Such request shall be made in ample time to permit approval without delaying the work, but need not be made in less than 35 days after award of the contract.

Wherever in the contract documents the name or the name and address of a manufacturer or supplier is given for a material, product, or equipment, or if any other source of a material, product, or equipment is indicated therefor, such information is given for the convenience of the Contractor only, and no limit, restriction, or direction is indicated or intended thereby, nor is the accuracy or reliability of such information guaranteed. It shall be the responsibility of the Contractor to determine the accurate identity and location of any such manufacturer, supplier, or other source of any material, product, or equipment called for in the contract documents.

Approval by the Engineer of substitute item proposed by the Contractor shall not relieve Contractor of the responsibility for full compliance with the contract documents and for adequacy of the substituted item. The Contractor shall also be responsible for resultant changes and all additional costs which the substitution requires in its work, the work of subcontractors and of other contractors and shall effect such changes without cost to the City.

6-1.05A No Warranty for Listed Material Supplier or Equipment Manufacturer. - The City does not warrant nor guarantee the ability of any material supplier or equipment manufacturer listed in the specifications to perform their work in a timely manner or in a manner acceptable to City. Furthermore, the City does not warrant that such materials or equipment installed and in place will be acceptable to the City.

6-1.06 Plant Inspection. - The Engineer may inspect the production of material, or the manufacture of products at the source of supply. Plant inspection however, will not be undertaken until the Engineer is assured of the cooperation and assistance of both the Contractor and the material producer. The Engineer or the Engineer's authorized representative shall have free entry at all times to such parts of the plant as concerns the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The City assumes no obligation to inspect materials at the source of supply.

6-1.07 Certificates of Compliance. - A Certificate of Compliance shall be furnished prior to the use of any materials for which these specifications or the special provisions require that such a certificate be furnished. In addition, when so authorized in these specifications or in the special provisions, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the specifications. A Certificate of Compliance shall be furnished with each lot of

material delivered to the work and the lot so certified shall be clearly identified in the certificate.

All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the work which conforms to the requirements of the plans and specifications and any such material not conforming to such requirements will be subject to rejection whether in place or not.

The City reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

6-1.08 Foreign Materials. - Materials which are manufactured, produced or fabricated outside of the United States shall be delivered to a distribution point in the San Francisco Bay Area, unless otherwise required in these specifications or the special provisions, where they shall be retained for a sufficient period of time to permit inspection, sampling, and testing. Attention is directed to the provisions in Section 8-1.07, "Liquidated Damages." The Contractor shall not be entitled to an extension of time for acts or events occurring outside of the United States and it shall be the Contractor's responsibility to deliver materials obtained from outside of the United States to the point of entry into the continental United States in sufficient time to permit timely delivery to the job site.

The Contractor, at no cost to the City, shall supply the facilities and arrange for any testing required in California which the City is not equipped to perform. All testing by the Contractor shall be subject to witnessing by the Engineer.

The manufacturer, producer or fabricator of foreign material shall furnish to the Engineer a Certificate of Compliance in accordance with the provisions in Section 6-1.07, "Certificates of Compliance." In addition, certified mill test reports clearly identifiable to the lot of material shall be furnished where required in these specifications or otherwise requested by the Engineer.

If the welding of steel for structural steel members or the casting and prestressing of precast prestressed concrete members is to be performed outside of the United States, the following requirements shall apply:

1. Such fabrication shall be performed only within the plants and by fabricators who have previously established, to the satisfaction of the Engineer, that they have the experience, knowledge, trained manpower, quality controls, equipment and other facilities required to produce the quality and quantity of work required. At the option of the Engineer, prequalification of the plant and fabricator will be established either by the submission of detailed written proof thereof or through in-plant inspection by the Engineer or the Engineer's representative, or both.
2. The Contractor shall make written application to the Engineer for approval for such foreign fabrication at the earliest possible time and, in no case, later than 50 days in advance of the planned start of fabrication. The

application shall list the specific units or portion of a work which will be fabricated outside of the United States.

3. The Contractor shall advise the Engineer, in writing, at least 20 days in advance of the actual start of any such foreign fabrication.
4. All documents pertaining to the contract, including but not limited to, correspondence, bid documents, working drawings and data shall be written in the English language and all numerical data shall use the foot-pound-second system of units of measurement.

The use of steel manufactured outside of the United States as unidentified stock material, as provided in Caltrans Section 55-2.07, "Unidentified Stock Material," will not be allowed.

6-1.09 State Specification Numbers. - The State Specification number of material furnished on the contract shall conform to the number specified in these specifications or the special provisions for the material involved, except that material conforming to a later specification issue will be acceptable.

6-1.10 Commencement of Warranty. - Unless expressly agreed to in writing by the City, all warranties required under the contract documents shall commence upon acceptance by the City of the entire project. Use or occupancy by the City of a portion of the project either before or after completion of that portion of the work shall not commence the running of any warranty required under the contract documents.

6-1.11 Samples. - All materials must be of specified quality and fully equal to samples previously submitted. The Contractor shall furnish to the Engineer for testing, free of charge, samples of all materials proposed to be used in the work, and also samples of completed Portland cement concrete or asphaltic concrete work. When so required by the Engineer, the Contractor shall submit for approval samples of the various materials, together with the finish thereon, as specified for that intended to be used in the work. All materials and workmanship shall be equal in every respect to that of the samples so submitted and approved. These samples shall be sent to such place as the Engineer may direct. In all cases, freight must be prepaid by the Contractor. These samples will be returned to the Contractor, if requested, freight collect.

Where samples are called for, 2 or more samples of materials to be used in fulfilling the requirements of the specifications shall be deposited with the Engineer as soon as possible prior to their use in the work.

No materials or equipment of which samples are required to be submitted for approval shall be used on the work until such approval has been given by the Engineer, save only at the Contractor's risk and expense.

6-2 LOCAL MATERIALS

6-2.01 General. - Local material is rock, sand, gravel, earth, or other mineral material, other than local borrow or selected material, obtained or produced

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from sources in the vicinity of the work specifically for use on the project. Local material does not include materials obtained from established commercial sources.

Local materials shall be furnished by the Contractor from any source the Contractor may elect, except that when mandatory local material sources of certain materials are designated in the special provisions, the Contractor shall furnish material from such designated mandatory sources.

The Contractor shall be responsible for making all arrangements necessary to obtain materials from any local material source other than a mandatory local material source. If the Contractor elects to obtain materials from a possible local material source, subject to the provisions of Section 6.02, "Possible Local Material Sources," the Contractor shall comply with the requirements of said section. If the Contractor elects to obtain material from any other non-mandatory source, the Contractor shall furnish the Engineer with satisfactory evidence that the Contractor has entered into an agreement with the property owner for obtaining material from such source and with copies of any necessary permits, licenses and environmental clearances before removing any material from such sources.

The furnishing of local materials from any source is subject to the provisions in Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," and in Section 6-2, "Local Materials."

Unless described in the special provisions as a mandatory local material source, or approved in writing by the Engineer, material sources shall not be excavated at locations where the resulting scars will present an unsightly appearance from any highway. No payment will be made for material obtained in violation of this provision.

The Contractor shall, at the Contractor's expense, make any arrangements necessary for hauling over local public and private roads from any source.

When requested by the Contractor in writing, the City will test materials from any local material source, which has not been previously tested. If satisfactory material from such local source is used in the work, the Contractor will not be charged for the costs of the tests.

In all other cases, the cost of such testing requested by the Contractor shall be at the Contractor's expense and deductions will be made from any moneys due or to become due the Contractor, sufficient to cover the costs of such tests.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in conforming to the provisions in this Section 6-2.01, for furnishing and producing materials from any source shall be considered as included in the price paid for the contract item of work involving such material and no additional compensation will be allowed therefor.

6-2.02 Possible Local Material Sources. - Where the City has made arrangements with owners of land in the vicinity of a project for the obtaining of material from an owner's property, such arrangements are made solely for the purpose of providing all bidders an equal opportunity to obtain material from such property. Bidders or Contractors may, upon written request, inspect the documents evidencing such arrangements between property owners and the City. The Contractor may, if so elect, exercise any rights that have been obtained, which may be exercised by a Contractor under such arrangements, subject to and upon the conditions hereinafter set forth.

Such arrangements are not a part of the contract, and it is expressly understood and agreed that the City assumes no responsibility to the bidder or Contractor whatsoever in respect to the arrangements made with the property owner

to obtain materials therefrom and that the Contractor shall assume all risks in connection with the use of such property, the terms upon which such use shall be made, and there is no warranty or guaranty, either express or implied, as to the quality or quantity of materials that can be obtained or produced from such property or the type or extent of processing that may be required in order to produce material conforming to the requirements of the specifications.

In those instances in which the City has compiled "Materials Information" as referred to in Section 2-1.03, "Examination of Plans, Specifications Contract, and Site of Work," said compilation may include the documents setting forth the arrangement made with some of the property owners for the obtaining of material from such owners' properties. The inclusion of such documents therein shall not in any respect operate as a waiver of any of the provisions in this Section 6-2.02 concerning said documents. All necessary permits, licenses and environmental clearances needed to enable the Contractor to use a possible local material source for which the "Materials Information" compilation for the project does not include said permits, licenses and environmental clearances issued to the Department (whether or not the arrangement made by the City with the owner of the property is included in the compilation) shall be obtained by the Contractor and copies thereof shall be furnished the Engineer before any material is removed from such source. The Bidder or Contractor is cautioned to make such independent investigation and examination as the bidder or Contractor deems necessary for their satisfaction as to the quality and quantity of materials available from such property, the type and extent of processing that may be required in order to produce material conforming to the requirements of the specifications and the rights, duties and obligations acquired or undertaken under such arrangement with the property owner. Notwithstanding that the Contractor may elect to obtain materials from any such property owner's property, no material may be obtained from such property unless the Contractor has first either:

- (1) Executed a document that will guarantee to hold such owner harmless from all claims for injury to persons or damage to property resulting from the Contractor's operations on the property owner's premises and also agree to conform to all other provisions set forth in the arrangement made between the City and the property owner. Said document will be prepared by the Engineer for execution by the Contractor, or
- (2) Entered into an agreement with the owner of the material source on any terms mutually agreeable to the owner and the Contractor; provided that the Contractor shall furnish to the Engineer a release, in a form satisfactory to the Engineer, executed by the owner, relieving the City of any and all obligations under the City's arrangement with the owner.

If the Contractor elects to obtain material under (1), the use of such site shall be subject to the terms, conditions and limitations of the arrangement made between the property owner and the City, and the Contractor shall pay such charges as are provided for in the arrangement made by the City with the property owner, and deductions will be made from any moneys due or that may become due the

Contractor under the contract sufficient to cover the charges for such material removed.

If the Contractor elects to obtain material under (2), the Contractor shall pay such charges as are provided for in the agreement between the owner and the Contractor and deductions will not be made from any moneys due or that may become due the Contractor under the contract to cover such charges.

Before acceptance of the contract, the Engineer may require the Contractor to submit written evidence that the owner of the material source is satisfied that the Contractor has satisfactorily complied with the provisions of either (1), the arrangement between the City and the owner, or (2), the agreement between the owner and the Contractor, as the case may be.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and producing specified materials from possible local material sources, including the construction of any access roads or fences and any clearing, grubbing and stripping of material sources, and all processing of whatever nature and extent required, shall be considered as included in the price paid for the contract item of work involving such material and no additional compensation will be allowed therefor.

6-2.03 Mandatory Local Material Sources. - The Contractor shall perform all work required to obtain and produce acceptable materials from the mandatory local material sources designated in the special provisions and the Contractor shall have no right to obtain such materials from any other source or sources. As part of such work in producing acceptable materials from the mandatory sources, it will be necessary for the Contractor to perform certain processing of the material as set forth in the special provisions. Any processing of the material required in addition to that specified in the special provisions which, in the opinion of the Engineer, is necessary to produce acceptable material from the mandatory sources will be paid for as extra work as provided in Section 4-1.03D.

If the Engineer determines that the designated mandatory local material source or sources are no longer to be used because they are exhausted or for other reasons, the Engineer will designate an alternative mandatory local material source or sources from which the Contractor shall obtain the balance of the material required.

In such case the City will pay the Contractor for the cost of moving the Contractor's plant to such new mandatory source and erecting it as extra work as provided in Section 4-1.03D. Construction of access roads, fences, clearing and grubbing or stripping of such new mandatory source, ordered by the Engineer to be performed, will be paid for as extra work as provided in Section 4-1.03D. The Department will also allow or deduct, as the case may be, the increase or decrease in haul cost due to an increase or decrease in the length of haul involved. Increased haul costs will be paid for as extra work as provided in Section 4-1.03D and deductions for decreased haul will be determined in the same manner. No allowance or additional compensation will be made for lost time or for delay in completing the work due to moving the Contractor's plant from the designated mandatory source to the alternative mandatory source, other than an extension of time pursuant to the provisions in Section 8-1.07, "Liquidated Damages." Any processing of the material required in addition to that specified in the special provisions for the originally designated mandatory source which, in the opinion of the Engineer, is necessary to produce acceptable material from the alternative mandatory source will be paid for as extra work as provided in Section 4-1.03D.

The Contractor will be charged the same royalty as provided in the special provisions for the original designated mandatory local material source.

The Contractor shall, prior to entering a mandatory local material source or an alternative mandatory local material source, execute a document that will guarantee to hold the owner of such property harmless from all claims for injury to persons or damage to property resulting from the Contractor's operations on the property owner's premises. Said document will be prepared by the Engineer for execution by the Contractor.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in obtaining and producing specified materials from mandatory sources, including the construction of any access roads or fences and any clearing, grubbing, and stripping of mandatory local material sources, except as otherwise provided for in this Section 6-2.03, shall be considered as included in the price paid for the contract item of work involving such material and no additional compensation will be allowed therefor.

6-3 TESTING

6-3.01 General. - Unless otherwise specified, all tests shall be performed in accordance with the methods used by the Department of Public Works, and shall be made by the Engineer or the Engineer's designated representative.

The City uses Caltrans and American Society for Testing and Material (ASTM) developed methods for testing the quality of materials and work. These methods are identified by number and are referred to in the specifications as California and ASTM Tests. Copies of individual California Tests are available at the City's Material Testing Laboratory.

Whenever the specifications require compliance with specified values for the following properties, tests will be made by the California Test indicated unless otherwise specified:

Properties	California Test
Relative Compaction	216 or 231
Sand Equivalent	217
Resistance (R-value)	301
Grading (Sieve Analysis)	202
Durability Index	229

Whenever a reference is made in the specifications to a California Test by number, it shall mean the California Test in effect on the day the Notice to Contractors for the work is dated.

Whenever the specifications provide an option between 2 or more tests, the Engineer will determine the test to be used.

Whenever a reference is made in the specifications to a specification, manual, or test designation either of the American Society for Testing and Materials, the American Association of State Highway and Transportation Officials, Federal Specifications, or any other recognized national organization, and the number or other identification representing the year of adoption or latest revision is omitted, it shall mean the specification, manual, or test designation in effect on the day the Notice to Contractors for the work is dated. Whenever said specification manual or test designation provides for test reports (such as certified mill test reports) from the manufacturer, copies of such reports, identified as to the lot of

material, shall be furnished to the Engineer. The manufacturer's test reports shall supplement the inspection, sampling and testing provisions in Section 6, "Control of Materials," and shall not constitute a waiver of the City's right to inspect. When material which cannot be identified with specific test reports is proposed for use, the Engineer may, at the Engineer's discretion, select random samples from the lot for testing. Test specimens from the random samples, including those required for retest, shall be prepared in accordance with the referenced specification and furnished by the Contractor at the Contractor's expense. The number of such samples and test specimens shall be entirely at the discretion of the Engineer. Unidentified metal products such as sheet, plate, hardware, etc. shall be subject to the requirements of Caltrans Section 55-2.07, "Unidentified Stock Material."

When requested by the Engineer, the Contractor shall furnish, without charge, samples of all materials entering into the work, and no material shall be used prior to approval by the Engineer, except as provided in Section 6-1.07, "Certificates of Compliance." Samples of material from local sources shall be taken by or in the presence of the Engineer, otherwise the samples will not be considered for testing.

6-3.02 Blank

6-3.03 Statistical Testing. - Whenever both individual test results and operating range requirements are specified in these specifications or the Special Provisions, materials shall meet both requirements. Materials used in the work to replace materials which did not comply with requirements and were removed shall conform to the limits specified for the operating range.

Individual samples tested prior to the first use of aggregates from each source, or prior to the first use of aggregates after appreciable changes have been made in aggregate processing procedures, shall conform to the limits specified for the operating range.

If individual test results on materials used in the work do not fall within specified limits, but the operating range utilizing such test results is within the specified operating range limits, the individual test results may be waived at the discretion of the Engineer. No test result for material used in the work shall be omitted from the operating range determination.

Operating ranges shall be computed as follows:

Operating ranges shall be rounded to the same number of significant figures as are reported for individual test results. When the figure to be dropped is less than 5, round down; if greater than 5, round up, and if it is 5, round up or down to the even number.

Operating ranges shall be continuous for the entire project. In determining an operating range for a material property, all of the individual test results that represent material actually used in the work, except individual test results for portions of such material for which requirements have been revised by an executed contract change order, shall be used in the calculation. The test results shall enter the calculation sequence in the chronological order that the work is performed. The first individual test results shall start an operating range and shall meet the operating range requirements. Until more than 4 test results are available, the operating range shall be the numerical average of the individual test results. When

more than 4 test results are available, the operating range shall be determined by adding the last 4 individual test results, adding the new individual test results to this product and then dividing this sum by 5.

Where more than one source is used for a single material and the sources are not similar in all respects, a separate operating range shall be calculated for each source.

Where a single source provides material to more than one project, a separate operating range shall be calculated for each project. A single test result representing material delivered to different projects shall be used in each operating range for which it is appropriate and separate tests will not be required.

If individual test results on materials used in the work do not fall within specified limits, but the operating range utilizing such test results is within the specified operating range limits, the individual test results may be waived at the discretion of the Engineer. No individual test result for material used in the work shall be omitted from the operating range determination.

6-3.04 Field Tests, or Adjustments and Operations. - The Contractor shall arrange for the presence of a manufacturer's representative or other qualified persons who shall instruct City operating personal in the operation and care of all the various pieces of equipment and parts of the installation as determined by the Engineer. The Contractor shall superintend the operations of the equipment during the 30-day period and shall be responsible for the proper operation thereof, and shall make no claim against the City for any damage to the equipment during such operation, or for the services of the above-mentioned representatives or other qualified persons. The Contractor shall make changes, adjustments, or replacements of equipment as may be required to make the equipment comply with the specifications, or to replace any defective parts or material.

END OF SECTION